

NATURAL RESOURCES CONSERVATION SERVICE  
MONTANA CONSERVATION PRACTICE SPECIFICATION**WASTE UTILIZATION (ACRE)****CODE 633**

**DEFINITION:** Using agricultural wastes such as manure and wastewater or other organic residues.

**PURPOSE:** As part of a conservation management system, waste utilization is an essential practice for all land where agricultural wastes including animal manure and contaminated water from livestock and poultry operations; solids and wastewater from municipal treatment plants; and agricultural processing residues are generated, and or utilized.

**CONSERVATION MANAGEMENT SYSTEM**

Waste utilization is established as part of a conservation management system to address the soil, water, air, plant, animal, and human needs as related to the owner's goals and objectives. It is important to consider crop rotation, nutrient and pest management, irrigation water management, tillage practices, and other supportive conservation practices when designing a waste utilization system.

Use of agricultural wastes will be based on *at least* one analysis of the material during the time it is to be used. In the case of daily spreading, the waste shall be sampled and analyzed at least once each year. As a minimum, the analysis must identify (in pounds per ton or pounds per 1000 gallons) nutrient and specific ion concentrations including:

- ❖ Total Nitrogen (N)
- ❖ total phosphorus (P)
- ❖ total potassium (K)
- ❖ % moisture

Where the metal content of municipal wastewater, sludge, septage, and other agricultural waste is of a concern, the analysis shall also include determining the concentration of metals in the material.

When agricultural wastes are land applied, application rates shall be consistent with the requirements of the NRCS conservation practice standard for nutrient management (590).

Where agricultural wastes are to be spread on land not owned or controlled by the producer, the waste management plan, as a minimum, shall document the amount of waste to be transferred and who will be responsible for the environmentally acceptable use of the waste.

Records of the use of wastes shall be kept a minimum of five years.

**Organic Nutrient Characteristics**

Manure sampling techniques must be completed so that representative analyses can be determined. Samples should be sent to labs that are certified to test agricultural wastes for nutrients. Contact the Montana Department of Agriculture or Montana State University Extension Service for information.

Organic nutrients tested at different times of the year may vary in nutrient content due to changes in bedding, feed, amounts of water entering a storage facility, or degradation. To minimize variation, samples should be collected and analyzed as near to the application period as possible.

**Soil Conditions**

Soil salts (specifically salinity) may rise in areas receiving long-term applications of manure due to the inherent salt content naturally present in wastes. Reduce application rates or rotate field applications prior to salinity levels reaching 4 mmhos/cm.

## **Specification MT633-2**

### **Plant Nutrient Needs**

The determination of application rates based on plant nutrient needs is the primary consideration when planning organic nutrient utilization. The criteria found in the FOTG (Field Office Technical Guide) 590 Nutrient Management, must be used to determine plant nutrient needs. Those criteria include soil testing, realistic yield goals, and calculating the need for applied nutrient sources by accounting for nutrients already supplied through the soil, from previous crops, and from previous manure applications. Base organic nutrient application rates on nitrogen or phosphorus (excessive or deficient) for non-legume crops, grass hayland and grass pasture. Base organic nutrient application rates on phosphorus or potassium for planned legumes. In nutrient sensitive areas, base nutrients on sensitive N,P, or K.

### **Vegetation**

Insure that timing, quantity and distribution of waste applications do not cause ammonia burn, salt damage, crown damage, or stand suffocation to establish crops and forages.

### **Water Quality**

The Montana Water Quality Act, Section 75-5-605 of the Act (revised 1991) states that "It is unlawful to cause pollution of any state waters or to place or cause to be placed any wastes in a location where they are likely to cause pollution of any state waters..." See AWMFH, Montana Supplement, Chapter 1.

Wastes should be spread in a manner that prevents runoff of the wastes during application. Base the application rate of liquid wastes on soil infiltration rates so as not to exceed the amount of water needed to bring soil moisture content to field capacity within the rooting zone at the time of application. The actual rate shall be adjusted during application to avoid ponding or runoff. Stop applications if runoff or ponding is observed. Procedures for determining inches per hour rates for irrigated liquid manure is found in Chapter 11 of AWMFH.

### **Application Equipment**

Evaluate equipment to determine the capacity to regulate varying application rates. For example, utilizing an applicator that can only be adjusted in units of 1,000 is not appropriate for a design that calls for 3,400 gallons/acre. Do not design a system calling for numerous rates unless and until variable rate manure application equipment is available to producer. Do not design a system for a low application rate that the applicator is not capable of delivering. For example, designing a system calling for a different rate on each of 15 fields would require numerous calibrations, calculations, and documentation.

### **Location**

*Do **not** apply organic nutrients:*

1. Within 25 feet of any state waters.
2. Within 100 feet of residences, active or inactive water supply wells, mines, quarries, sinkholes receiving surface runoff, or other direct conduits to ground water.
3. To established grassed waterways, ditches, or other water conveyance system.
4. On fields with predicted water erosion rates greater than 5 T/A/Y (RUSLE).
5. Where a minimum separation distance of 15 inches cannot be maintained between injected, incorporated, or unincorporated manure and fractured bedrock.
6. Where agricultural wastes are to be spread on land not owned by the producer, the waste management plan, as a minimum, shall document the amount and concentration of waste to be transferred and who will be responsible for the environmentally acceptable use of the waste.

**Timing**

Fall applications of manure on coarse textured soils (see definition section) are not allowed. Delay fall applications on coarse textured soils until daily average soil temperatures at a six inch depth are below 50 degrees F.

Inject or incorporate during periods of the year when the water table is greater than 20 inches from the soil surface.

Apply in the morning to minimize odor if applications on warm days are necessary.

Avoid compaction on medium and fine textured soils by applying when soil moisture content is significantly less than field capacity (field is in a good tillable condition).